

what we claim is:

1. A batch system for preparing a plurality of chemical liquids each of which is simultaneously used for a following downstream process, the system comprising:

a plurality of chemical liquid preparation lines, each of which includes:

one or more multi-purpose primary chemical liquid preparation vessels;

one or more multi-purpose chemical liquid stock vessel each of which is connected to each of the multi-purpose primary chemical liquid preparation vessels;

one or more chemical liquid measuring device each of which is connected to each of the multi-purpose chemical liquid stock vessels;

a single secondary chemical liquid preparation vessel; and

piping connected to the chemical liquid measuring devices to feed the chemical liquid in the chemical liquid stock vessels to the single secondary chemical liquid preparation vessel;

whereby a required change of the chemical liquid can be made by replacing the chemical liquid in each of the vessels with new ones without affecting another chemical liquid preparation line in changing prescription for the following downstream process.

2. A batch system as claimed in claim 1, wherein each of the numbers of the multi-purpose primary chemical liquid preparation vessels and the multi-purpose chemical liquid stock

vessels in each chemical liquid preparation lines is equal to an expected maximum number of the single chemical liquid feeding lines to be used.

3. A batch system as claimed in claim 1, further
5 comprising:

a common chemical liquid preparation vessel for preparing common chemical liquid used in the plural chemical liquid preparation lines;

a common chemical liquid stock vessel connected to the
10 common chemical liquid preparation vessel; and

piping connected to the common chemical liquid stock vessel with branches for feeding the common chemical liquid into each of the secondary chemical liquid preparation vessels.

1 4. A method for preparing a material in a batch process
15 by throwing in a raw material and feeding the prepared material to a following downstream process, the method comprising steps of:

calculating a necessary amount of the material for the following process; and

20 allocating the calculated amount of the material to following predetermined number of batches if the calculated necessary amount is less than a predetermined amount, an allocated amount being equal to or more than ^a minimum amount one batch process can treat.

25 2 4. A method as claimed in claim 1, wherein the predetermined amount is less than three times ^a standard amount one batch process treats and the predetermined number of batches is three.

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³ 3. A method for preparing a material in a batch process by throwing in a raw material and feeding the prepared material to the following process, the method comprising steps of:

calculating a necessary amount (A) of the material for
5 the following process; and

determining a real amount (B) to be prepared in the following batch process by use of a maximum amount per one batch process M-max, a minimum amount per one batch process M-min, and a standard amount M-st that is determined between the
10 maximum amount M-max and the minimum amount M-min, the real amount being determined by the following steps:

determining the real amount (B) as the standard amount M-st if the necessary amount (A) is more than twice standard amount M-st;

15 determining the real amount (B) as a half of the necessary amount (A)/2 if the necessary amount (A) is between twice standard amount and a maximum amount M-max;

determining the real amount (B) as the necessary amount (A) if the necessary amount (A) is between the maximum amount
20 M-max and the minimum amount M-min; and

determining the real amount (B) as the minimum amount M-min if the necessary amount (A) is less than the minimum amount M-min.

4 4. A method as claimed in claim ³3, wherein the maximum
25 amount M-max is more than twice the minimum amount M-min.

5 5. A method as claimed in claim ³3, further comprising a step of:

determining the real amount (B) as the minimum amount M-min

when the real amount (B) is set to the half of the necessary amount (A)/2 and the minimum amount M-min is more than the half of the necessary amount (A)/2.

6. A method as claimed in claim ³~~8~~, further comprising a
5 step of:

determining the real amount (B) as the maximum amount M-max or an amount between the maximum amount M-max and the standard amount M-st if the necessary amount (A) is more than twice the maximum amount M-max.

7. A method as claimed in claim ³~~8~~, further comprising
10 a step of:

providing a standard container containing a necessary amount of the raw material to be thrown in one batch process, and plural fractional containers each of which contains the raw
15 material smaller than the necessary amount; and

selecting a proper container among the standard container and the fractional containers in accordance with the real amount (B).

8. A method as claimed in claim ⁴~~7~~, further comprising
20 a step of:

providing a standard container containing a necessary amount of the raw material to be thrown in one batch process, and plural fractional containers each of which contains the raw material smaller than the necessary amount; and

selecting a proper container among the standard container and the fractional containers in accordance with the real amount (B).

9. A method as claimed in claim ⁵~~8~~, further comprising

a step of:

providing a standard container containing a necessary amount of the raw material to be thrown in one batch process, and plural fractional containers each of which contains the raw material smaller than the necessary amount; and

selecting a proper container among the standard container and the fractional containers in accordance with the real amount

(B). ¹⁰

~~13.~~ A method as claimed in claim ⁶~~9~~, further comprising a step of:

providing a standard container containing a necessary amount of the raw material to be thrown in one batch process, and plural fractional containers each of which contains the raw material smaller than the necessary amount; and

selecting a proper container among the standard container and the fractional containers in accordance with the real amount

(B).

¹¹~~14.~~ A method for preparing a material in a batch process by throwing in a raw material into a batch system and feeding the prepared material to the following process, the batch system including a plurality of material preparation lines, each of which including one or more multi-purpose primary material preparation vessels, one or more multi-purpose material stock vessel each of which is connected to each of the multi-purpose primary material preparation vessels, one or more material measuring device each of which is connected to each of the multi-purpose material stock vessels, a single secondary material preparation vessel, and piping connected to the

material measuring devices to feed the material in the material stock vessels to the single secondary material preparation vessel, and a required change of the chemical liquid being made by replacing the material in each of the vessels with new ones
5 without affecting another material preparation line in changing prescription for the following downstream process, the method comprising steps of:

calculating a necessary amount (A) of the material for the following process; and

10 determining a real amount (B) to be prepared in the following batch process by use of a maximum amount per one batch process M-max, a minimum amount per one batch process M-min, and a standard amount M-st that is determined between the maximum amount M-max and the minimum amount M-min, the real
15 amount being determined by the following steps:

determining the real amount (B) as the standard amount M-st if the necessary amount (A) is more than twice standard amount M-st;

determining the real amount (B) as a half of the necessary
20 amount (A)/2 if the necessary amount (A) is between twice standard amount and a maximum amount M-max;

determining the real amount (B) as the necessary amount (A) if the necessary amount (A) is between the maximum amount M-max and the minimum amount M-min; and

25 determining the real amount (B) as the minimum amount M-min if the necessary amount (A) is less than the minimum amount M-min.
